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CONTRIBUTIONS FROM THE CRYPTO GAMIC LABORATORY OF
HARVARD UNIVERSITY. — XLII.

PRELIMINARY DIAGNOSES OF NEW SPECIES OF
LABOULBENIACEÆ. — 2.

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Dimorphomyces Myrmedoniae nov. sp.

Male individual tinged with smoky brown, relatively small, similar to those of the other species, except that the neck of the antheridium is proportionately much shorter, its base inflated, its distal portion short and attenuated; the distal cell of the receptacle large, distally very thick-walled, the thickened portion undergoing a gelatinous degeneration. Total length to tip of antheridium, including foot, $65\ \mu$, to tip of sterile portion $40\ \mu$. Antheridium $38\ \mu$ long, the venter $25 \times 14\ \mu$.

Female individual relatively large, tinged with smoky brown, the sterile part of the receptacle terminated by a blunt distal cell, subtended by a blackened septum, the distal portion of which is thick walled and often swollen or disappearing through gelatinous degeneration; the fertile portion resembling that of the other species in general structure but developed almost at right angles to the axis of the sterile part on one side only, as in *D. Thleoporae*, very long and nearly isodiametric throughout; the perithecia from two to five in number and the appendages from three to six, alternating as a rule, the two series diverging slightly from opposite sides, the subtending cells relatively large and slightly oblique in reference to the marginal portion, so that their size appears to be greater when viewed on one side than on the other. Perithecium rather long and slender, nearly straight, stouter in small individuals and somewhat inflated; the tip blunt or nearly truncate; tinged with smoky brown, borne on a short divergent stalk-cell (hardly visible), from which it bends abruptly upward. Appendages relatively large, consisting of two superposed cells constricted at the septa, the basal one longer, distally more deeply suffused, the upper distally suffused and modified like the

corresponding portion of the sterile portion of the receptacle. Spores about $20 \times 3 \mu$. Perithecia in well developed individuals $100 \times 18 \mu$. Lateral portion of receptacle $75 \times 20 \mu$, the sterile portion 60μ . Appendages about $58 \times 13 \mu$.

On *Myrmedonia flavicornis* Fauv., British Museum (Biologia Coll.), No. 766, Guatemala.

Dimorphomyces Thleopora nov. sp.

Male individual much as in *D. muticus*, the receptacle ending in a short blackened cell, bluntly rounded or nearly truncate. Total length to tip of antheridium 66μ , to tip of sterile cell 37μ .

Female individual. Structure of the receptacle like that of the other species, but only developed on one side of the median sterile portion, which consists of three cells like that of the male individual and is black tipped. The appendages and perithecia arising as in the other species, the latter nearly symmetrically fusiform, bluntly rounded at the tip, tinged with smoky brown, the tip undifferentiated, the appendages (broken) relatively large and simple. Perithecia (not quite mature) $50 \times 14 \mu$. Foot to end of lateral portion 50μ . Total length to tip of perithecium 80μ .

On *Thleopora corticalis* Gz., Paris Museum, No. 297, Santa Anna, Madeira. On inferior surface of abdomen.

Dimeromyces pinnatus nov. sp.

Male individual consisting of a basal cell more than twice as long as broad, the axis above of eight or nine cells separated by horizontal septa, all but the lowest and the terminal cell separating a small cell on one side which forms the base of an antheridium or of a sterile appendage, the two organs diverging slightly from one another so as to form two vertical rows. Antheridium compound, short and stout, the venter abruptly distinguished from the stout neck, the base of which is slightly enlarged and purplish brown, the distal part tapering very slightly, the apex blunt. Appendages consisting typically of six cells, including the basal cell, constricted at the dark septa, the distal cells suffused with brownish, the terminal one larger, longer, and more or less vesicular, the thick walls tending to gelatinous degeneration. Total length of receptacle $100 \times 12 \mu$. Antheridia $35 \times 12 \mu$. Appendages $50 \times 7 \mu$.

Female individual. Basal cell large and stout, the cells above it about twenty in number, greatly flattened, the septa horizontal, a few of the

lower cells having appendages on only one side or none, the rest bearing them on both sides. Appendages simple, consisting of from five to seven cells including the basal cell, constricted at the dark septa, the terminal cell hyaline and much larger, as in the male; the rest, except the basal one, purplish or the upper one tinged with brown. Perithecia one to three in number, mostly rather slender, slightly curved outward; the stalk portion about half as long as the remainder, which is purplish brown, deeper distally; the tip well distinguished when not distended by spores, consisting of a basal portion larger and slightly inflated and a distal one, formed by the lip-cells, abruptly distinguished, its external margins generally symmetrically divergent, the four cells nearly equal and symmetrical and ending distally in a corresponding number of papillæ about the pore. Perithecia including stalk, $125 \times 20 \mu$. Receptacle $190-225 \times 28 \mu$, not including basal cells of appendages. Appendages $55 \times 8 \mu$.

On *Ardistomis* sp., Hope Collection, No. 296. No locality, but probably Mexico or South America. At base of elytra and on leg.

***Dimeromyces nanomasculus* nov. sp.**

Male individual very minute, consisting of three superposed cells, the upper bearing a terminal two-celled appendage with dark septa, the sub-basal cell giving rise to a single antheridium like that of *D. pinnatus*, smaller, the neck usually abruptly turned to one side. Total length to tip of appendage 35μ ; the antheridium about $15 \times 5 \mu$.

Female individual resembling that of *D. pinnatus* in general structure, the basal cell large and long, narrower below; the cells above about ten to fifteen in number, usually roundish; the appendages mostly five-celled above their basal cell, variably suffused with brown, the septa dark, sometimes curved or almost hooked distally, the distal cell not conspicuously enlarged becoming brownish; the subterminal cell of the single terminal appendage examined producing a blackish-brown, lateral, irregular, spine-like outgrowth. Perithecium straight, more commonly solitary near the tip, brownish yellow to dark brown, not at all distinguished from the stalk, which is hyaline only at its narrow base, the hyaline tip abruptly distinguished by a slight subtending ridge, its margins usually converging symmetrically to the truncate or blunt apex. Spores about $45 \times 3 \mu$. Perithecia, including stalk, $100-120 \times 20-24 \mu$. Appendages longer $60 \times 6 \mu$. Total length to tip of perithecium $245-285 \times$ about 22μ .

On *Ardistomis viridis* Say, Coconut Grove, Florida. November. On *A. educta* Bates, British Museum (Biologia Collection), No. 676.

MONOICOMYCES nov. genus.

Receptacle consisting of a basal and subbasal cell, above which it terminates in a small two-celled sterile portion, the terminal cell of which may or may not be in the form of a short appendage; the subbasal cell giving rise to from one to several fertile branches, the habit becoming thus unilateral, bilateral or subverticillate in different species. The fertile branches consisting of from one to several cells in different species, the terminal cell of each branch normally giving rise to a stalked perithecium and a stalked antheridium; the remainder, if there are more than one, appendiculate on the upper side, rarely (abnormally?) producing an additional antheridium. Antheridium of the compound type, consisting of a stalk composed of a pair of cells, the antheridium proper consisting of certain basal cells, two tiers of peripheral cells, which surround (not on all sides?) numerous antheridial cells and a cavity above them, and three or four terminal cells, which appear to surround an opening through which the antherozoids are discharged, and which subsequently grow upward, forming terminal simple appendages of irregular length.

Monoicomycetes Homalotae nov. sp.

Receptacle consisting of very small hyaline basal and subbasal cells surmounted by a distal portion, very much as in *Dimorphomyces*, which is blackish brown, the lower cell larger and distally inflated. Fertile branches normally two, when the individual is bilaterally symmetrical, rarely three, consisting of a single cell which bears distally an antheridium from its outer and a perithecium from its inner angle. Perithecium amber brown slightly asymmetrical, relatively very large, short and stout, the lower half greatly inflated, generally more so on the outer than the inner side, distally conical, the small tip not distinguished, usually abruptly truncate, the stalk-cell hyaline, narrowing to its base. Antheridium borne on a pair of rather short stalk-cells, the basal cells somewhat smaller and angular, forming part of the wall around the antheridial cells, the wall cells somewhat smaller than the basal cells, but large and distinct, the terminal cells apparently four in number, later forming stout finger-like upgrowths of unequal length. Spores about $35 \times 3 \mu$. Perithecia including basal cells $100-120 \times 30-35 \mu$, the stalk-cell $35-40 \mu$. Antheridia including stalk-cells (not the terminal projections) $70-80 \times 30-35 \mu$. Sterile part of receptacle about 70μ .

On *Homalota putrescens* Woll., British Museum, No. 412, Azores. On inferior surface of abdomen.

Monoicomycetes Brittanicus nov. sp.

Nearly or quite hyaline. General structure as in *M. Homalotæ*, the sterile portion of the receptacle small and inconspicuous, the terminal cell in the form of a short hyaline simple appendage. Fertile branches consisting of a single cell bearing the antheridium and perithecium as in *M. Homalotæ*. Perithecium rather long-stalked, slightly asymmetrical or bent, the base inflated, tapering gradually to the blunt undifferentiated tip. Antheridium borne on a pair of rather long stalk-cells, the basal cells almost exactly similar to them and distally not enclosing any portion of the antheridial cavity, the wall cells well developed, the cavity within them relatively small, the terminal cells growing up into generally stout finger-like processes which may extend above the tip of the perithecium. Perithecium, including basal cells, $90 \times 30 \mu$. Antheridia to base of terminal projections $80 \times 20 \mu$.

On *Homalota insecta* Thom., British Museum, No. 454, Hammer-smith, England. On superior surface of abdomen.

Monoicomycetes St. Helenae nov. sp.

Superficially resembling *Compsomyces* in general habit. Pale yellowish or straw colored. Receptacle consisting of a triangular basal and a squarish or roundish subbasal cell which bears a small distal cell with a short terminal appendage separated from it by a constricted blackish septum; two to four branches arising from the subbasal cell, normally fertile and consisting of from two to five, usually three, superposed cells which are commonly somewhat inflated distally, more so on one side, an upgrowth from which becomes separated so as to form a prominent small cell lying close against the base of the axis-cell next above and is simple or longitudinally divided; in the former case bearing one, in the latter a pair of peculiar short appendages from which they are separated by a conspicuously blackened septum; the basal cell of this appendage usually similarly blackened externally, as is the base of the cell above it, which is usually characteristically geniculate, its terminal portion erect suffused with brown or hyaline, and either terminating the appendage or followed by two or three hyaline cells. Perithecium symmetrically inflated slightly distinguished from the basal cells, the tip small straight truncate tapering but slightly and abruptly distinguished. The antheridium relatively small, its stalk and basal cells about equal, the antheridium proper about as large as the basal part and hardly broader, its terminal cells developing as in the other species to long flexuous hyaline upgrowths. Spores

$38 \times 3.5 \mu$. Perithecia $100-120 \times 40-48 \mu$. The stalk $34-50 \times 25-27 \mu$. Appendages of fertile branch $50-90 \times 5 \mu$. Sterile part of receptacle $50-50 \mu$. Greatest length to tip of perithecium $250-435 \mu$.

On *Oxytelus alutaceifrons* Woll., British Museum, No. 411, Island of St. Helena. On abdomen and elytra.

***Monoicomycetes invisibilis* nov. sp.**

Hyaline. Basal cell of receptacle small subtriangular, the subbasal cell rather long and narrow, bearing terminally a distally rounded cell from which it is separated by an oblique septum and which is surmounted by a short simple cylindrical appendage; the fertile branch developed on one side only, not distinguished from the receptacle and its appendage, consisting of two or three obliquely superposed cells extending obliquely upward in a divergent series, the terminal cell bearing a perithecium and antheridium in the usual relative positions, the subterminal cell sometimes apparently producing a second antheridium instead of the simple appendage which terminates the lower cell of the series. Perithecium borne on a rather short stout stalk-cell, its inflated basal half not distinguished from the flattened basal cells, its slender distal half abruptly distinguished. Antheridium apparently similar in general to that of the other species, its detailed structure not recognizable in the types. Perithecia $84 \times 30 \mu$. The stalk-cell $20 \times 10 \mu$. Receptacle, sterile part, about 40μ . Total length to tip of perithecium $110-140 \mu$.

On *Homalota putrescens* Woll., British Museum, No. 412, Azores.

POLYASCOMYCES nov. genus.

Receptacle consisting of two superposed cells, the upper bearing a perithecium laterally and an appendage terminally. Appendage consisting of a series of superposed flattened cells, surmounted by a dome shaped portion which is not persistent (a compound antheridium?). Perithecium with a distinct stalk-cell and well developed basal cells, the supporting cell and the lower wall cells forming a broad base the upper surface of which forms a broad ascigerous area, the asci arising from great numbers of ascigerous cells.

It has not been possible from the material available to determine the exact nature of the antheridium in this remarkable genus. The terminal dome shaped portion of the appendage appears to consist originally of several cells, but whether it constitutes the whole of the antheridium or whether the latter is represented in part or wholly by the curious cells

below it, was not shown by the material. The multiplication of ascigerous cells of which there are not less and probably more than thirty-six, distinguishes it from all other known genera.

***Polyascomyces Trichophyæ* nov. sp.**

Pale dirty brownish. Perithecium broadest in the ascigerous zone, tapering thence to the distinctly differentiated neck-like tip, the subterminal wall cells enlarged distally, externally and laterally, the resultant rounded protuberances forming a ridge about the tip just above its middle, the distal portion, formed by the lip-cells, of which that on the right is slightly longer than the rest, broad blunt brownish, the other three somewhat shorter terminating in narrow blunt extremities which lie on three sides of the first. The stalk-cell similar to and lying beside the subbasal cell of the receptacle to which it is united throughout, its base being in contact with the distal end of the basal cell, while from its distal end the large basal cells of the receptacle curve abruptly outward and upward. The appendage consisting of from three to six flat superposed darker brown cells, constricted at the septa, looking as if they had been made irregular by crushing, the terminal portion (antheridium?) blunt, slightly longer than broad, with evidences of lateral apertures. Spores $28 \times 2.5 \mu$. Perithecia $175 \times 50-65 \mu$. Basal cells $40-48 \times 30 \mu$. Stalk 38μ . Receptacle 70μ . Appendage $48-60 \times 20-24 \mu$.

On *Trichophya pilicornis* Gyll., British Museum, No. 453, Farnham, England. On superior surface of abdomen.

***Cantharomyces Platystethi* nov. sp.**

Yellowish with a brownish tinge. Receptacle consisting of a small basal cell and a subbasal cell more than twice as large, bearing the perithecium and appendage. Perithecium borne on a rather long stalk-cell, the basal cells continuous with its main body which is inflated below, conical above, the narrow apex truncate or bluntly rounded. The appendage large, its subbasal cell nearly twice as long as the basal, bearing the very small antheridium which forms a short cellular margin below its upper inner angle and apparently consists of not more than ten cells; the subbasal cell terminated by an irregular series of small cells which appear to produce a tuft of branches distally, and from which it may sometimes be separated by a third cell similar to it. Perithecia $80-86 \times 35 \mu$. The stalk-cell $55 \times 20 \mu$. Receptacle $50-70 \times 28 \mu$. Appendages $140-170 \mu$.

On abdomen of *Platystethus cornutus* Grav., British Museum, No. 449, Kilburn, England.

***Eucantharomyces Diaphori* nov. sp.**

Pale straw colored. Perithecium rather short and stout, its basal cells small, slightly and usually symmetrically inflated; tapering from about the middle to the broad blunt slightly asymmetrical tip, which is subtended below the free lips, on the inner side, by the flat trichophoric cell, just above which arises a very slender recurved rigid appendage (not cellular) about $8-9\ \mu$ long. Receptacle rather short and stout, the subbasal (anterior) cell somewhat stouter than the basal, the two together somewhat larger than the short stalk-cell of the perithecium. Appendage relatively large, its basal cell short subtriangular, the upper and lower septa oblique, the subbasal cell slightly longer than broad, its upper two thirds bordered by the marginal cell which terminates in a slender stiff straight spine-like process about $11-12\ \mu$ long and slightly divergent; the antheridial cells in five rows of five, four, three, three, and two cells respectively; a single additional cell sometimes persisting above the antheridial cavity; the discharge tube bent outward and slightly upward, the tip bluntly conical with a slight basal enlargement. Spores $40 \times 3.5\ \mu$. Perithecia $120 \times 30\ \mu$. The stalk-cell $30 \times 18\ \mu$. Appendage $70\ \mu$ long, the antheridium $28 \times 21\ \mu$. Receptacle $45 \times 24\ \mu$. Total length to tip of perithecium $180\ \mu$.

On *Diaphorus tenuicornis* Chaud., British Museum (Biologia Coll.), No. 714. Oaxaca, Mexico. On mid-elytron.

***Eucantharomyces spinosus* nov. sp.**

Perithecium straw colored, rather stout, inflated, tapering to the broad asymmetrical tip which is slightly sulcate; the outer lips often larger than the inner, the latter bordered or subtended by the more deeply colored trichophoric cell which, in mature specimens, is not very conspicuous; the stalk-cell rather short. Receptacle short, the cells nearly equal. Appendage much as in *E. Diaphori*, more slender, the marginal cell extending nearly to the base of the subbasal cell, distinctly enlarged below a terminal spine-like process, which is usually nearly erect; the antheridial cells in three rows of five, three (relatively large) and one to two cells respectively, the discharge tube large and broad, nearly truncate, bent abruptly upward from the base. Spores $35-40 \times 3.5-4\ \mu$. Perithecia $138 \times 41\ \mu$. Appendage $70 \times 14\ \mu$, the antheridium $35 \times$

16 μ . Receptacle $50 \times 20 \mu$. Total length to tip of perithecium 190–207 μ .

On *Drypta* sp., Paris Museum, No. 80. Java. On elytron.

Eucantharomyces Euprocti nov. sp.

Perithecium straw colored to pale amber brown, slightly asymmetrical, somewhat inflated below; the upper half tapering gradually to the blunt asymmetrical apex which is subtended on the inner side by the rounded flat darker amber brownish trichophoric cell which may extend slightly beyond the lip-edges, simulating a lip-cell; the outline of the mature perithecium becoming more or less corrugated through the appearance of three to five rather broadly rounded successive elevations, corresponding to the distal and basal septa of the two lower tiers of wall cells and to a median protrusion of these cells where five are present; stalk-cell becoming slender, mostly slightly shorter than the receptacle; the basal cells small. Receptacle relatively rather long, the cells nearly equal. Appendage generally longer than the receptacle, its basal and subbasal cells nearly equal; antheridial cells in three rows of five, three, and two cells each, the marginal cell bluntly rounded above and extending nearly to the base of the subbasal cell; the discharge-tube large, bent outward or obliquely upward. Spores $50 \times 4.5 \mu$. Perithecia $160\text{--}170 \times 48 \mu$, stalk-cell $70 \times 15 \mu$. Receptacle $85\text{--}90 \times 25\text{--}30 \mu$. Appendage 110μ , antheridium $41 \times 22 \mu$, the discharge-tube 30μ . Total length to tip of perithecium 310μ .

On *Euproctus quadrinus* Bates, British Museum (Biologia Coll.), No. 731. Volcan de Chiriqui, Panama.

Eucantharomyces Casnoniae nov. sp.

Perithecium relatively large, rather long, often slender, inflated below, tapering to the relatively narrow blunt apex; its outline corrugated through the presence of from seven to eleven elevations varying in prominence, the trichophoric cell simulating a lip-cell, the basal cells elongated and as long or nearly as long as the rather stout stalk-cell. Receptacle relatively small. The basal and subbasal cells of the appendage relatively small and stout, nearly equal, or the latter somewhat smaller, the marginal cell bordering its upper half and distally prominent, partly free and slightly inflated, ending in a short spine-like tip; the antheridium consisting of three rows of nine, seven and five cells respectively, the discharge-tube relatively short and stout, bent upward

and over the prominent tip of the marginal cell. Spores $45 \times 3.5 \mu$. Perithecia $240-260 \times 45-62 \mu$, stalk-cell $75-80 \times 20-28 \mu$, basal cells $75-100 \times 25-30 \mu$. Receptacle $55-65 \times 27 \mu$. Appendage $85-103 \mu$, the antheridium $50-60 \times 24-28 \mu$. Total length to tip of perithecium $375-450 \mu$.

On *Casnonia subdistincta* Chaud., British Museum (Biologia Coll.), No. 704. Cordova, Mexico.

***Eucantharomyces Callidæ* nov. sp.**

Perithecium rather narrow, slightly inflated, tapering from about the middle to the blunt tip which is rather abruptly distinguished externally, sometimes bent outward, its distal margin outwardly oblique; the relatively small trichophoric cell simulating a lip-cell, projecting slightly beyond the latter externally, but not abruptly distinguished on its inner side; the outline of the perithecium becoming inconspicuously corrugated through the presence of sometimes as many as eleven successive elevations; the basal cells elongated, the base of one of the outer external to the stalk-cell from which it is separated by an oblique septum longer than the width of the stalk-cell, which is narrower below and about equal to the basal cells in length or somewhat shorter. Receptacle symmetrically sulcate distally, rather long, the two cells nearly equal. Appendage rather long, its basal cell extending downward and lying external to the upper half of the subbasal cell of the receptacle; the subbasal cell more than twice as long as broad, the marginal cell reaching to its base and distally prominent. Antheridium relatively small, the antheridial cells in three rows of five, four, and three cells respectively, the discharge-tube rather short and stout, erect or bent but slightly. Spores $40 \times 4 \mu$. Perithecia $230-265 \times 50 \mu$, basal cells 120μ , stalk-cell 103μ . Receptacle $100-120 \mu$. Appendage $120-125 \mu$, antheridium $25 \times 38 \mu$. Total length to tip of perithecium average 325μ .

On *Callida* sp., Paris Museum, No. 68. Venezuela.

***Eucantharomyces Africanus* nov. sp.**

Very similar to *E. Callidæ*. Amber brown. Perithecium large subfusiform, the margins generally indistinctly corrugated, sometimes marked by fine transverse striations which may be wholly absent, the tip relatively small and rather abruptly distinguished, the trichophoric cell well defined, projecting beyond the lip-cells so that the apex usually appears oblique asymmetrical and slightly sulcate; the basal cells somewhat

shorter than the stalk-cell, their lower septa nearly equal and symmetrical, both slightly oblique. Receptacle of medium size, the basal cell distally enlarged. Appendage short, the two basal cells rather small and nearly equal in length, consisting of three rows of six, four, and four cells respectively, the discharge-tube slightly curved, abruptly nearly erect, distally somewhat narrower and conical when young, the marginal cell extending nearly to the base of the subbasal cell. Perithecia $275-325 \times 45-50 \mu$, the stalk-cell $100-130 \mu$, the basal cells $75-100 \mu$. Receptacle $100 \times 26 \mu$. Appendage 100μ . Antheridium $45 \times 21 \mu$, the discharge tube 21μ . Total length to tip of perithecium $575-600 \mu$.

On *Callida Natalensis* Hope, Hope Coll. No. 274, Natal, Africa. On *Callida* sp., Brit. Museum, No. 550, Angola, Africa. On elytra.

Eucantharomyces Catascopi nov. sp.

Straw colored becoming pale amber brown. Perithecium elongate tapering but slightly toward the tip or becoming distally swollen through the pressure of the spore mass, the margins corrugated through the presence of sometimes as many as seventeen or even more prominences, which are mostly well defined, especially the distal one of the series, above which the slightly bent tip is abruptly distinguished, its distal margin straight oblique, the lip-cells extending just beyond the small darker trichophoric cell; basal-cells very much elongated and often corrugated through the presence of six or more elevations corresponding to those of the perithecial wall-cells; the stalk-cell rather stout much shorter than the basal cells, from which it is separated by an outer very oblique and an inner short nearly horizontal septum. Receptacle relatively small, the basal cell longer than the subbasal cell, distally enlarged so that it almost coincides with the base of the stalk-cell, which is thus hardly in contact with the subbasal cell from which it was originally derived. The basal cell of the appendage somewhat smaller than the subbasal cell, the marginal cell bulging outward slightly distally and extending almost to the base of the subbasal cell. Antheridial cells in five rows of eight, seven, six, five, and four cells or the four inner rows somewhat variable. Spores $50 \times 4.5 \mu$. Perithecia $400-475 \times 60-70 \mu$, the stalk-cell $140-200 \times 35-40 \mu$, the basal cells $200-240 \mu$. Receptacle $100-110 \times 38 \mu$. Appendage 120μ ; antheridium $60 \times 32 \mu$. Total length $680-950 \mu$.

On *Catascopus* sp., Paris Museum, No. 117. Îles des Moluques. On the margin of the right elytron.

Dichomyces Javanus nov. sp.

Perithecium as long or longer than the receptacle, clear dark reddish brown, translucent, straight or slightly curved, rather slender, of about the same diameter throughout, the tip usually abruptly distinguished, and more or less conspicuously bent to one side, tapering but little to the rather broad blunt undifferentiated apex. Receptacle rather narrow, the basal cell dark red-brown below, nearly hyaline above; the central cell of the lower tier dark red or red-brown, lighter or hyaline at the base; the cells on either side symmetrical blackish brown opaque, extending upward so as to partly enclose the base of the second tier, the margins of the two tiers coincident: the second tier composed of from seven to nine cells, hyaline or becoming suffused below with reddish brown, bearing a well defined sharply pointed purplish slightly asymmetrical antheridium, on either side, which are subtended by from one to two typical rather short appendages: the upper tier very similar to the middle or slightly larger, nearly hyaline, the single perithecium rising to the right of the median appendage, the right half of the tier thus somewhat larger and higher than the left, three typical appendages usually present on either side. Perithecia $145 \times 26 \mu$. Spores about $36 \times 4 \mu$. Receptacle $120-140 \times 50 \mu$. Total length to tip of perithecium $250-275 \mu$.

On *Philonthus* sp. British Museum, No. 375. On abdomen.

Dichomyces exilis nov. sp.

Basal cell hyaline. Median cell of lower tier deeply suffused with brown but not opaque; marginal cells wholly opaque or translucent on the inner margins, extending upward so as to enclose the base of the second tier; second tier consisting typically of thirteen cells, colorless or partly suffused with brownish, the antheridia large brownish straight or slightly curved, the venter inflated, the cells external to them appendiculate, the outer three free above the marginal prolongation of the lower tier and forming a short blunt projection on either side: upper tier like the middle one mostly somewhat longer and narrower, consisting of from thirteen to fifteen cells, the sub-median ones nearly triangular and for the most part distally overlapped by the external cells next in order and the basal cells of the perithecia. Perithecia typically two, pale brownish amber, long and narrow, slightly if at all inflated, tapering gradually to the undifferentiated broad nearly truncate apex. Spores $35 \times 4 \mu$.

Perithecia $130-140 \times 22 \mu$. Receptacle $130-140 \times 22 \mu$. Total length to tip of perithecium $250-275 \mu$.

On *Philonthus xanthomerus* Kraatz., British Museum (Biologia Coll.), No. 751, San Andres, Vera Cruz. On antennæ and anal appendages.

Dichomyces Angolensis nov. sp.

Basal cell hyaline. Lower tier opaque or the middle cell subhyaline, the marginal cells opaque, extending up on either side of the middle tier: middle tier relatively large, consisting of about thirteen to sixteen hyaline cells, the three to four external ones continuing the margin of the first tier directly and either subhyaline or blackened below, each bearing a normal appendage; the antheridia of medium size, brownish: upper tier smaller, shorter, and narrower than the middle one, consisting of from thirteen to fifteen hyaline cells: distally slightly concave, bearing a pair of perithecia, the appendages small, hyaline. Perithecium large and stout straight, faintly brownish, slightly inflated, tapering distally to the nearly symmetrical truncate apex. Perithecia $120-135 \times 30 \mu$. Length to the tip of perithecium 250μ . Greatest length of receptacle $140 \times 75 \mu$.

On *Philonthus* sp. indet. British Museum, No. 379. Angola, Africa. On elytra.

Dichomyces insignis nov. sp.

Basal cell suffused with reddish brown or partly hyaline; the lower tier wholly opaque or translucent along the median line; the middle tier consisting of about thirteen to seventeen cells, exclusive of those which are indistinguishable in the slender fork-like prolongations which extend on either side higher than the middle of the upper tier, the margin broadly blackened, continuous with the opaque margin of the lower tier; the lower portion of the three to five median cells marked by a few large scattered transversely elongated brown patches which merge on either side into the opacity of the marginal cells; antheridia very large, the venter slightly inflated, the neck sharply pointed, conical, brown, often abruptly contrasting, three to five of the cells immediately external to them bearing normal brownish appendages: distal tier very large subtriangular, distally concave, consisting of from twenty-nine to thirty-nine narrow and elongated cells and bearing from four to eight perithecia with some irregularity; the appendages brownish, paired above the subtending cell, not as long as the perithecia. Perithecia relatively small,

purplish brown, tapering almost continuously from the broad base; the tip moderately well distinguished, the posterior lips prolonged to form long nearly straight and horizontal slightly inflated appendages which project from the tip on either side; the anterior lips forming the truncate apex, which consists of two distinct lateral projections with an intervening convex portion having a median apiculus. Perithecia about $85-30\ \mu$, the appendages from tip to tip $35-39\ \mu$. Antheridia $50 \times 11\ \mu$. Receptacle $300-340 \times 200-230\ \mu$. Total length to tip of perithecium $375-400\ \mu$.

On an undetermined staphylinid collected by A. R. Wallace at Sarawak, Borneo, Hope Coll. No. 218.

Dichomyces biformis nov. sp.

Basal cell hyaline or nearly so, usually somewhat enlarged and often with a heel-like anterior projection; lower tier rather narrow, quite opaque, the marginal cells extending up to the subterminal marginal cell of the middle tier or to the cell next below it: the middle tier short and stout, the nine to eleven cells hyaline or faintly reddish brown above, usually becoming more or less suffused below and externally with brown; the median cells, where suffused, marked by darker transverse flecks on their anterior face, the marginal cells ending in a blunt distal often hyaline prominence on either side; antheridia short and stout subconical, subtended by a single brown inconspicuous appendage: the distal tier assuming in well developed individuals the form of a rather slender crescent, the number of cells very variable, the maximum about fifty, sometimes less than half this number, in which case the form is stouter, the marginal cells rarely extending above the tips of the perithecia which are four to eight in number and of two kinds which are not known to be associated on the same individual; in the one case they are stouter, purplish brown, the basal third or more often abruptly hyaline or nearly so, the much darker red brown tip tapering rather abruptly to the apex, which is hyaline nearly truncate, with a well defined median blunt projection; the posterior lip-cells prolonged much as in *D. insignis* to form a long horizontal nearly cylindrical or slightly tapering bluntly tipped hyaline appendage on either side; the second type more often longer and more slender than the first, pale reddish brown, the tip tapering, slightly truncate or blunt, often with a blunt median projection as in the first type, but without appendages. Perithecia $105-110 \times 20-35\ \mu$. Receptacle $200 \times 100-300 \times 270\ \mu$.

On *Philonthus* sp., Niagara Falls, New York, Mr. Charles Bullard: on

Philonthus umbratilis Grav., British Museum, No. 362, Leicester, England; Paris Museum No. 206 and British Museum, No. 407, Madeira; Paris Museum, No. 175, St. Pierre et Miquelon.

Dichomyces hybridus, nov. sp.

Basal cell small hyaline with a red brown suffusion near the base: lower tier narrow and elongate, opaque or sometimes with a median translucent line: middle tier rather narrow, not more than five of the median cells distinguishable, and more or less conspicuously marked on the anterior side by dark transverse flecks or striæ; distally hyaline or merely tinged with reddish brown above, becoming red-brown and finally opaque below; the margins opaque, continuous with those of the first tier and extending upward to form fork-like opaque projections, as in *D. furciferus*, which equal or exceed the upper tier in length; a single appendage arising posterior to the rather small purplish antheridium: upper tier relatively large, distally concave, composed of from fifteen to thirty-three nearly hyaline cells with reddish brown shades along the septa, the median cells sometimes flecked with reddish brown spots or transverse striæ towards the base, bearing two to six perithecia which may be of two types associated on the same individual or occurring on different individuals: the one type somewhat smaller, straighter and more erect, reddish brown, the lower half often abruptly paler or nearly hyaline, tapering rather abruptly to the tip, the lips of which are modified much as in *P. furciferus*; the other type larger, rather characteristically divergent, tapering rather abruptly to the truncate unmodified apex; appendages hyaline, sometimes as long as or even longer than the perithecia. Spores $35 \times 4 \mu$. Perithecia $100-115 \times 25-30 \mu$. Total length to tip of perithecium $250-300 \mu$. Receptacle $175-250 \times 85-145 \mu$.

With both types of perithecia: on *Philonthus aeneipennis* Boh., Paris Museum, No. 203, Gulf of Oman, India; on *Philonthus* sp., British Museum, No. 366, Sylhet, Assam, India; on *Philonthus* sp., British Museum, No. 368, Hong Kong, China.

With only one form of perithecium (not appendiculate): on *Philonthus ventralis* Grav., British Museum, Ealing, England; Paris, No. 207, Funchal, Madeira; British Museum, No. 426, Europe; on *Philonthus* sp. British Museum, No. 495, Balthazar, Grenada, West Indies; British Museum, No. 369, China; on *P. proximus* Woll., British Museum, No. 403, Canaries; on *P. gemellus* Kr., British Museum, No. 367, Ceylon; on *Philonthus* sp., Niagara Falls, N. Y. (C. Bullard).

Dichomyces Madagascarensis nov. sp.

Basal cell deeply suffused with brown. Lower tier very long and slender, opaque except for a faint median translucent line: middle tier with three to five of the median cells distinguishable, red-brown; the rest indistinguishable in the opaque margins which extend upward to form long fork-like outgrowths on either side that may reach nearly to the tips of the perithecia; antheridia not large, brownish: upper tier consisting of about twenty-one to twenty-three cells, tinged with reddish brown, relatively large, deeply concave distally; the median cells like those of the middle tier, marked by fine faint transverse striæ, bearing normally two perithecia which are long and slender, often slightly curved and divergent, pale reddish brown, the tip narrow, the posterior lip-cells forming two small, slightly divergent projections (like those of *D. furciferus* but relatively smaller) curved at the tips, the anterior lips meeting in a point between them. Appendages hyaline, sometimes equalling the perithecia in length. Spores very slender and abundant, $35 \times 2 \mu$. Perithecia $125-135 \times 25 \mu$. Total length to tip of perithecium $320-350 \mu$. Receptacle $225-240 \times 105 \mu$.

On *Philonthus Sikoræ* Fauv., Paris Museum, No. 179, Tananarivo, Madagascar. On abdomen.

Dichomyces vulgatus nov. sp.

Receptacle short and stout, the basal cell small squarish hyaline; the lower tier externally opaque, except the whole or the middle of the median cell or only its upper end, the opaque margin divergent extending above the base of the second tier, the blackened margin of which is continuous with that of the first tier; sometimes, like it, divergent, more often abruptly less divergent or even erect, extending upward to form on either side free fork-like, usually opaque, sometimes hyaline projections as in *D. furciferus* which may extend to a point somewhat above the base of the perithecia or may be almost obsolete; the three middle cells of the middle tier usually more or less conspicuously punctate below, with transversely elongated blackish brown spots: the antheridia normally placed, unusually long and large, pointed, with two or three short, inconspicuous normal appendages placed one behind, the rest external to it. The upper tier distally concave, consisting of from fifteen to twenty-one cells, producing normally four perithecia associated as usual with short stout typical appendages. Perithecia usually erect, straight, rather stout, pale reddish

amber brown, the lower half or third often abruptly lighter, tapering to a blunt tip which bears on either side a short, stout, often slightly recurved ear-like outgrowth as in *D. furciferus* formed by the prolongation of the anterior lip-cells, the posterior lips forming a usually angular, sometimes sharply pointed projection between them. Antheridia purplish, nearly straight or slightly curved, rather abruptly enlarged below the sharply pointed apex, the venter somewhat inflated. Perithecia $80-100 \times 25 \mu$. Antheridia $35 \times 7 \mu$. Total length to tip of perithecia $200-225 \times 100-115 \mu$. Appendages 35μ .

On *Philonthus flavolimbatus* Erichs., Panama, British Museum, No. 750 (Biologia Coll.); *P. parvimanus* Sharp, Chontales, Nicaragua, British Museum, No. 746 (Biologia Coll.); *Philonthus* sp., Mt. Gay, Est Grenada, West Indies, British Museum, 489 (Smith Coll.); *P. sabalaris* Nord., British Museum, No. 406, Madeira; *P. longicornis* Steph., British Museum, No. 408, Island of St. Helena; *P. cruentatus* Gmel., British Museum, No. 358, Europe; *P. varians* Peck, British Museum, No. 359, Ealing, England; *P. dimidiatus* Er., British Museum, No. 761, Notting Hill, England. On abdomen. A form, apparently this species, also from Hong Kong, on *Philonthus* sp., British Museum, No. 396.

Dichomyces Cafianus nov. sp.

Tinged with dull amber brownish throughout, the perithecia darker. Basal cell nearly hyaline, the lower tier as in *D. vulgatus*, the opacity involving in general but half of the upper (external) cells, the septa of which are visible on the inner side, the median cell dark brown, its lower half or more opaque: the middle tier consisting of typically thirteen cells, the margins unmodified and ending in a short external rounded projection, which does not extend beyond the base of the upper tier; the rather inconspicuous antheridium normally placed, concolorous, a single short appendage close behind it: the upper tier consisting of from nineteen to twenty-three, usually twenty-one, cells, forming an inverted crescent, the short, stout, bladder-like appendages arranged as in *D. vulgatus*. Perithecia normally two in number, somewhat inflated externally, nearly straight, slightly asymmetrical, rather stout, tapering to the bluntly pointed undifferentiated tip. Spores $45 \times 4.5 \mu$. Perithecia $120-140 \times 35-40 \mu$. Receptacle $200-250 \times 100-140 \mu$. Total length to tip of perithecium $310-350 \mu$. Appendages about $20 \times 6 \mu$.

On *Cafius puncticeps* White, British Museum, No. 381. Colenso (S. Africa?).

Dichomyces dubius nov. sp.

Receptacle much as in *D. princeps* and similarly colored, smaller, shorter, and stouter, antheridia large purplish; the distal tier of cells producing typically two, rarely more, perithecia, which are pale brownish and dimorphous; usually rather slender, tapering slightly, the posterior lip-cells producing ear-like outgrowths recurved or bent forward as in *D. vulgatus*: more rarely larger and stouter, the blunt, often asymmetrical tip without appendages; the two forms sometimes, but not usually, associated on the same individual: external appendages normally large, long, colorless, reaching to the middle of the perithecium or even to its tip. Individuals asymmetrical, with a single antheridium and perithecia of the second type, are not infrequently met with on the legs of the host. Perithecia $70-90 \times 20 \mu$, those without appendages $70-105 \times 30-35 \mu$. Spores $35 \times 4 \mu$. Receptacle about $120 \times 75 \mu$. Total length to tip of perithecium average 190μ .

On *Philonthus* sp., Niagara Falls, New York. On all parts of host. On hosts received from Mr. Charles Bullard. Possibly a variety of *D. princeps*, to which it is very closely allied. None of the abundant material of the latter from different parts of the world, however, show any tendency to produce an auricled type of perithecium.

Dichomyces Peruvianus nov. sp.

Receptacle with faint brownish shades especially along the septa, almost in the form of two superposed isosceles triangles, the lower very regular, including the basal cell and the first and second tiers, its distal margin horizontal, the upper truncate at the base and distally concave. The basal cell short, the lower tier consisting of from three to four cells, nearly equal in length; the middle tier of typically thirteen cells, the antheridia of medium size, the outer five cells distally appendiculate, one of the appendages situated behind the antheridium as usual; the distal series consisting of usually twenty-seven cells bearing typically four perithecia, the appendages placed as usual, colorless, somewhat shorter than the perithecia, which are mostly brownish externally and hyaline on the inner side, the brown or reddish fawn color sometimes predominating, asymmetrical, somewhat inflated, slightly bent inward near the tip which is small, pointed, and well distinguished. Perithecia about $120 \times 30 \mu$. Receptacle $207-240 \times 140-175 \mu$. Appendages 185μ (longest). Total length to tip of perithecium $300-350 \mu$.

On *Brachyderus simplex* Sharp. In Dr. Sharp's Collection, Peru. On elytra and abdomen.

Peyritschiella Amazonica nov. sp.

Perithecium translucent brown, about as long as the receptacle, subclavate large, contracted below to form a neck-like base, somewhat inflated distally, the tip well though not abruptly distinguished, tapering to the nearly truncate apex formed by the slightly expanded tips of the lip-cells which are otherwise unmodified. Receptacle rather narrow, pale translucent brown, consisting of a single basal cell followed by three tiers of cells; the lower symmetrical or nearly so consisting of three long narrow nearly equal cells not appendiculate and not projecting laterally: the middle tier asymmetrical, consisting of about twelve cells, the series projecting distally on either side, all the cells except the three larger median and the external ones producing distally short typical appendages, the third cell on the right from the median cell bearing a prominent erect antheridium: the terminal tier very similar to the middle one, consisting of about the same number of cells which produce short typical appendages distally and (in the types) a single nearly median perithecium. Perithecia $200-210 \times 36 \mu$. Receptacle $225 \times 70 \mu$. Antheridium 45μ long. Total length to tip of perithecium about 400μ .

On an undetermined staphylinid. British Museum, No. 400. Nanta, Amazon River.

Peyritschiella protea nov. sp.

Perithecia translucent, brownish amber colored, rather stout and symmetrically inflated, the symmetrical tip tapering rather abruptly, the apex rather narrow truncate, the lip-edges unmodified. Receptacle nearly or quite hyaline, consisting of a single basal cell, above which the three typical tiers of cells are very variously developed: the lowest of these may rarely consist of a single cell, often of three which do not project laterally, or in well-developed specimens of as many as twelve or more cells, those external to the middle three forming on either side distal external angular usually asymmetrical projections, one or both of which may bear terminally one or even two perithecia and typical appendages: the middle series like the lower when the latter is well developed, subtriangular in form, consisting of sometimes as many as fifteen to eighteen cells, generally somewhat asymmetrical; a single perithecium usually arising distally from the projecting portion on either side, together with numerous typical appendages: the distal tier similar to the middle one, mostly smaller, somewhat asymmetrical, bearing usually a single perithecium above the

median cell, though not produced from it, the remaining cells bearing typical appendages, often as long or longer than the perithecium, the small subtending cell being unusually well defined. Subject to great variation, and sometimes producing more than one antheridium. Perithecia $80-96 \times 32 \mu$. Receptacle $270 \times 80-100$ to $120 \times 45 \mu$. Total length to tip of perithecium $200-350 \mu$.

On *Bledius bicornis* Germ., British Museum, No. 392, Europe (Thuringia), No. 432, Europe; on *Oxytelus rugosus* Fabr., British Museum, 450, Hampstead, England; on *Acrognathus mandibularis* Gyll, British Museum, No. 434, Europe. On legs, elytra, and prothorax. In small specimens the two lower tiers may be but slightly developed, bearing neither appendages nor perithecia, the middle producing one antheridium, the number of cells and appendages on one side of the perithecium being as in all cases greater than on the other.

LIMNAIOMYCES nov. genus.

Receptacle consisting of two portions, a basal part below the perithecium and a distal part united to its posterior margin; the basal portion consisting of a single basal cell, surmounted by two tiers of cells (somewhat as in *Peyritschiella*), the anterior cell of the upper tier giving rise to a compound antheridium in structure similar to that of *Peyritschiella*: the distal (marginal) portion consisting of an inner and an outer elongated cell, the inner terminating in one of the bell-shaped appendiculate cells characteristic of *Chitonomyces*, separated from the simple appendage by a broad, constricted, blackened septum; the outer by successive subterminal external proliferations forming a series of cells from which a smaller secondary appendiculate cell is separated above, the whole corresponding in development to the external portions of the tiers of cells in *Dichomyces*, the proliferation taking place to the right and left successively, so that the appendages appear to arise in two rows.

A clearly defined genus apparently intermediate between *Peyritschiella* and *Chitonomyces*.

Limnaiomyces Tropisterni nov. sp.

Perithecium amber brown, straight, erect, with a slight nearly median inflation or tapering but very slightly to the undifferentiated tip; the upper half free. Receptacle pale straw colored, distally dull amber brownish, the foot minute, black; the basal cell short and small, the lower tier consisting of two cells which are nearly equal, several times

as long as broad: the second tier consisting of three cells, the posterior one longest, the median longer than the anterior, which terminates in the antheridium, which is subtended by four basal cells, two of them outer and lower and separated by oblique partitions, while a smaller upper one lies on either side: above the antheridium two vertically elongated cells form the clearly defined base of the perithecium; external to these cells and somewhat obliquely separated from them lies the broad base of the inner marginal cell of the distal portion of the receptacle, which lies next above the middle cell of the upper tier, its cavity nearly obliterated above as the spores mature, the primary appendiculate cell which terminates it rather elongate; the proliferation of the outer marginal cell beginning quite near its base, forming a series of about eight cells separated by oblique septa and terminated by small appendiculate cells; the appendages very small, vesicular, brownish below. Perithecia $127-175 \times 35-37 \mu$. Receptacle, basal part, $75-110 \mu$, distal part $75-110 \mu$. Appendages $6 \times 3 \mu$. Total length to tip of perithecium $240-375 \mu$, to tip of receptacle $190-265 \mu$.

On *Tropisternus* sp. indet., Paris Museum, No. 47. Mexico. On tip of abdomen.

***Limnaiomyces Hydrocharis* nov. sp.**

Hyaline. Perithecium rather stout and short, somewhat inflated, its tip abruptly bent outward, the apex bluntly rounded or nearly truncate; the tip and the appendiculate cell usually symmetrically divergent. Basal portion of the receptacle relatively short and stout but otherwise similar in structure to that of *L. Tropisterni*; the two basal cells of the perithecium almost obliterated at maturity so that its base appears to rest immediately on the antheridium; the distal portion of the receptacle bordering the perithecium to its tip, the inner cell becoming almost wholly obliterated in the middle and terminating in a short bell-shaped appendiculate cell which is slightly divergent: the outer marginal cell usually proliferating three times; of the three cells thus formed the two inner, as a rule, produce well developed, long, simple, hyaline appendages; not, however, as well developed as the primary appendage, which may be twice as long as the perithecium. Spores $50 \times 3 \mu$. Perithecia $60-80 \times 17-20 \mu$. Receptacle, basal part, $50 \times 20-26 \mu$, distal part $50-62 \mu$. Appendages, longest, primary 140μ , secondary 70μ . Total length to tip of perithecium $100-128 \mu$.

On *Hydrocharis obtusatus* Say, Cutts Island, Kittery Point, Maine. At tip of abdomen.

Chitonomyces Floridanus nov. sp.

Pale straw colored with a smoky, brownish tinge, the basal and subbasal cells relatively large, the former rather elongate, the latter broader than long, the distal cell erect, conical, appendiculate, its basal septum horizontal. Perithecium relatively large, distally somewhat inflated, the posterior margin to the apex nearly straight, the tip moderately well distinguished, the inner margin strongly convex between the tip and the secondary appendage; the lip-cells each forming a more or less distinct papilla. Spores relatively large about $35 \times 3 \mu$. Perithecia $70 \times 28 \mu$. Receptacle, distal part, 62μ , the two basal cells with foot 52μ . Total length to tip of perithecium $120-138 \mu$.

On *Cnemidotus 12-punctatus* Say, Eustis Florida, October. On legs and elytra.

Chitonomyces aethiopicus nov. sp.

Perithecium red-brown, darker on the inner side, with faint transverse striations, somewhat curved; the inner lip-cells producing at the left a blackish brown projection directed obliquely outward across the tip and resembling a canine tooth, the inner lip-cell on the left producing a much smaller, blackish, inconspicuous, tooth-like projection; one of the inner, wall cells abnormally developed, bulging inward against and almost overtopping the subterminal appendiculate cell, the greater portion of the margin of this outgrowth nearly horizontal and extending from the apex of the perithecium to the insertion of the subterminal appendage which is sunk in an abrupt depression between it and the base of the terminal cell of the receptacle. Receptacle nearly hyaline, strongly curved throughout, consisting of a long basal and subbasal cell which appear to lie side by side for nearly their whole length, the lower marginal cell of the distal portion almost obliterated by the body of the perithecium, the subterminal cell large triangular, the terminal cell about as large, and separated from it by a nearly horizontal septum; wholly free, abruptly geniculate, the distal portion much narrower, erect and black (the tip broken), abruptly distinguished above an external bulge of the portion below it. Perithecia $128 \times 40 \mu$, the tooth-like projection 18μ . Receptacle to tip 275μ , the basal and subbasal cells including the foot $140 \times 35 \mu$. Total length to tip of perithecium 255μ .

On *Orectochilus specularis* Aubé, Paris Museum, No. 100, Gold Coast, Africa. On elytra.

***Amorphomyces obliqueseptata* nov. sp.**

Male individual unknown.

Female individual, straw colored tinged with amber brown, the receptacle consisting of a very small basal cell and a short, broad, subbasal cell bearing the very large perithecium and without appendages. The perithecium broadly inflated at the base becoming gradually narrow distally, the tip blunt asymmetrical; the apex somewhat oblique, the asci and spores filling the perithecium in great numbers, developed from a single ascogenic cell. The spores obliquely septate $40 \times 7 \mu$. Perithecium $200 \times 55\text{--}60 \mu$. Receptacle without foot $35 \times 27 \mu$.

On the antennæ of an undetermined staphilinid, British Museum, No. 398, Ega, Amazon River.

***Teratomyces vulgaris* nov. sp.**

Perithecia one to three in number, usually symmetrical and straight, becoming clear purplish brown, often considerably inflated below and conical above; the tip blunt or sometimes slightly pointed, the basal cells variously elongated sometimes nearly as long as the perithecium proper and often longer than the usually well developed stalk-cell. Receptacle symmetrical, its basal cell nearly hyaline, the cell above it tinged with reddish brown and somewhat larger, the third cell like the subbasal, squarish and somewhat larger. Appendages nearly hyaline or suffused, never deeply, with reddish brown, comparatively few in number, rather stout and long in general, the curved beak-like terminations of other species wholly wanting; all the appendages or their primary branches distinguished by a blackish brown basal septum, some, often many of them distinguished by being closely septate above, the cells thus formed producing a series of lateral outgrowths projecting obliquely upward and superposed (the antheridia?) Perithecia $140\text{--}200 \times 45\text{--}60 \mu$, their basal cells $40\text{--}120 \mu$, the stalk-cell $35\text{--}126 \times 25 \mu$. Receptacle to base of appendages $70\text{--}100 \mu$. Appendages (longest) 175μ . Total length to tip of perithecium $325\text{--}450 \mu$.

On *Quedius fulgidus* Fabr., British Museum, No. 354, Kiel, Germany; on *Q. fuliginosus* Grav., British Museum, No. 355, Europe; on *Q. truncicolus* Fair. (= *ventralis* Arag.), British Museum, No. 435, Great Britain; on *Q. cruentus* Oliv., British Museum, No. 422, Europe; on *Quedius* sp. indet., British Museum, No. 356, Canada; on *Q. fulgidus* Fabr., Hope Coll., No. 216, Europe; on *Philonthus*? sp. indet., British Museum, No. 365, Hungary.

Teratomyces Philonthi nov. sp.

Perithecia commonly two, long and slender, a basal middle and distal portion distinguished, corresponding to the basal, middle and the distal wall- and lip-cells, the basal portion slightly inflated, purplish, the middle distinguished from it by a slight elevation at the septa; the middle nearly hyaline, rather abruptly narrowed, its margin slightly concave owing to a slight distal enlargement, which, in mature specimens, distinguishes it rather abruptly from the much shorter narrower subconical mostly symmetrically truncate colorless distal portion; the stalk-cell rather short, concealed by the appendages; the basal cells forming a squarish base. Receptacle relatively small, symmetrical or asymmetrical, the basal cell translucent brownish, the subbasal cell very small, flattish, wholly involved by the deep nearly opaque suffusion of the lower half or more of the upper cell, which is nearly hyaline above. Appendages short, slightly exceeding the base of the perithecium, rather rigid, slightly divergent, for the most part dark brown; forming a rather dense tuft, many ending in pointed cells, the slender terminations straight or bent and forming the beak-like cells characteristic of the genus. Spores $36 \times 4 \mu$. Perithecia $140-175 \times 25-30 \mu$, the stalk-cell about 35μ . Receptacle about $85 \times 35 \mu$. Appendages (longest) about 70μ . Total length to tip of perithecium $250-300 \mu$.

On *Philonthus* sp. indet., British Museum, No. 365, Hungary.

Corethromyces Brazilianus nov. sp.

Perithecium and receptacle much as in *C. Cryptobii*, but differing distinctly in the character of its appendage, the inner main branch of which consists of from four to six cells, the others very short, all nearly opaque, the branchlets long rigid divergent, curved abruptly outward at the tips. Total length to tip of perithecium $200-375 \mu$. Spores $28 \times 3 \mu$. Perithecia $90-175 \times 28-38 \mu$. Appendages to tip of branchlets $140-200 \mu$. Two specimens from Colombia, apparently identical, are much larger; total length 610μ ; branches of appendages 540μ ; perithecia 450μ .

On *Cryptobium Brazilianum* Lec., Paris Museum, No. 173, Brazil; on *C. fasciatum* Erichs, Paris Museum, No. 197, Caracas, Venezuela; on *C. Flohri* Sharp, British Museum (Biologia Coll.), No. 762, City of Mexico; also from same collection on *C. venustum* Sharp, No. 758, Oaxaca, Mexico; on *C. similipenne* Say, No. 761, Mexico. The larger type on *Cryptobium* sp. indet., British Museum, No. 385, Colombia. On all parts of host.

Corethromyces purpurascens nov. sp.

Perithecia dull purple, mostly slender straight or slightly curved, nearly isodiametric or the outer margin convex; the base slightly broader, the junction of the basal and subbasal and of the subbasal and subterminal wall cells indicated by a distinct protrusion in well developed individuals, in which the tip is thus moderately well distinguished although in most cases, especially in smaller specimens, the margin forms an unbroken line from base to apex, the perithecium being sometimes distinctly inflated basally; the stalk-cell as in *C. Cryptobii* hyaline above, becoming opaque brown below. Basal cell of the receptacle purplish or brownish translucent, the rest opaque indistinguishable from the almost wholly opaque main body of the appendage, the oblique inner margin of which is followed by a series of hyaline or purplish cells, three or more in number which give rise to the erect branches; the primary branches sometimes purplish near the base but producing an erect tuft of branches and branchlets which are quite hyaline, more or less flexuous and tapering. Perithecia $100-150 \times 25 \mu$. Total length to tip of perithecium $175-275 \mu$. Longest branches of appendages about 140μ .

On *Cryptobium capitatum*, Paris Museum, No. 172, Brazil; on *Cryptobium* sp. indet., British Museum, No. 494, Balthazar, Grenada, West Indies.

EUCORETHROMYCES nov. genus.

General form as in *Rhadinomyces*, the receptacle consisting of two superposed cells, the upper giving rise to the perithecium and appendage. Perithecium as in *Rhadinomyces*, stalked. Appendage consisting of several superposed cells the distal one bearing terminally a series of branches which produce free flask shaped antheridia laterally, borne on short lateral branchlets or sessile.

Eucorethromyces Apotomi nov. sp.

Hyaline becoming tinged, especially the perithecium, with pale amber brown. Receptacle short, the subbasal cell usually smaller, its axis coincident with that of the stalk-cell. Perithecium rather slender, inflated toward the base, the distal half slender tapering slightly to the blunt unmodified apex, the basal cells rather small, nearly equal, the stalk-cell stout and well developed. Appendage divergent almost at right angles to the axis of the receptacle, its basal cell usually more than twice as large as the subbasal cell, which bears distally and anteroposteriorly a single, or partly double, row of from four to six branches, some of them

often elongate, slender straight or curved, suffused with dark blackish brown, hyaline along the inner margin at least toward the base, obliquely septate, the septa dark; the antheridia stout, flask shaped, subtended by a dark septum, borne singly and laterally or several together on short branchlets near the base. Spores $26 \times 2 \mu$. Perithecia $100-125 \times 25-28 \mu$, $35-38 \times 14-18 \mu$. Receptacle $40 \times 18 \mu$. Appendage without branches $50 \times 16 \mu$. Total length to tip of perithecium $190-207 \mu$. The Celebes material somewhat smaller.

On *Apotomus xanthotelus* Bates, British Museum, No. 578, Celebes; on *A. rufus* Rossi, British Museum, No. 577, Europe. On elytra.

Rhizomyces crispatus nov. sp.

Perithecia brownish, rather stout: when viewed sidewise, the inner margin strongly convex, the outer nearly straight with a general median elevation or concave owing to a general outward curvature, tapering to the undifferentiated tip, the apex broad truncate, usually symmetrically bisulcate: viewed at right angles to this position straight symmetrical, abruptly enlarged below the narrow symmetrical abruptly distinguished tip: the basal cells well defined nearly isodiametric, the stalk-cell large, as long or longer than the perithecium. Receptacle two-celled, the foot typically modified and blackened without rhizoids, distally geniculate through a protrusion of the distal cell below the insertion of the stalk-cell and opposite that of the appendage. Appendage erect, sometimes exceeding the tip of the perithecium, consisting of a single series of superposed cells, the three or four lower suffused with smoky brown, the rest subhyaline, each cell except the basal one giving rise directly and externally to a branch, the insertion in successive cells being somewhat to the right and left of the median line so as to form two vertical rows, the basal cells of alternate branches being superposed; each branch consisting of a basal cell externally blackened, which gives rise above to a one-celled short branchlet, bearing usually a pair of long, slender antheridia, the remainder of the branch curved upward blackish brown except its upper margin, and giving rise from its lower (external) side to a series of close-set simple branchlets, black, recurved, more abruptly at the tips which are slightly enlarged and nearly hyaline, the whole suggesting the margin of a curled black feather. Spores $20 \times 2.8 \mu$. Perithecia $65-75 \times 27-30 \mu$, the stalk-cell $50-85 \mu$. Receptacle 30μ . Appendages $140-175 \mu$.

On *Diopsis* sp., British Museum, No. 739, Natal, Africa.

Rhachomyces Philonthinus nov. sp.

Perithecia borne on a short broad hardly visible stalk-cell, reddish brown, inflated toward the base, conical above, straight and nearly symmetrical, the tip blunt, undifferentiated symmetrical. Main axis of the receptacle distinct, consisting of about twenty cells, including about eight to ten cells which form its erect free termination beside the base of the perithecium; the three lower cells mostly suffused with red brown, those above hyaline or partly suffused, increasing in size to about the eleventh cell, above which they become successively smaller to the tip of the free portion; the septa for the most part marked by rather prominent constrictions. Appendages numerous but not obscuring the main axis of the receptacle, slightly divergent, mostly tapering distally and slightly bent below the straight hyaline tips; those arising about the base of the perithecium longer and stouter, brown and mostly blunt tipped, about six in number and extending about to the middle of the perithecium. Spores about $40-45 \times 4 \mu$. Perithecia $140-200 \times 40-60 \mu$. Receptacle $220-340 \mu$. Total length to tip of perithecium $350-500 \mu$. Longest appendages about 100μ .

On *Philonthus longicornis* Steph., British Museum, No. 408, Island of St. Helena; on *Philonthus* sp. indet., Hope Coll., No. 225, British Isles. On abdomen and elytra.

Rhachomyces velatus nov. sp.

Perithecium short stout straight symmetrical, evenly inflated pale brownish, translucent; the tip abruptly dark brown opaque or nearly so, tapering symmetrically to the blunt rounded apex. Receptacle varying in length, consisting of perhaps eighteen to twenty cells, the basal cell and sometimes two or three of those above it hyaline or nearly so, the rest indistinguishable, being concealed by the densely crowded appressed appendages, which are rather short and slender, deep brown or opaque except along the inner margin and at the tip; those around the base of the perithecium also densely crowded, subequal blunt-tipped, wholly suffused, completely enveloping it and wholly concealing it till it is fully developed when the tip alone projects beyond them. Spores about $35-40 \times 3-4 \mu$. Perithecia $175 \times 75 \mu$ or smaller. Total length to tip of perithecium $400-550 \mu$. The longer appendages about 120μ .

On *Colpodes agilis* Chaud., British Museum (Biologia Coll.), No. 696, Jalapa, Mexico; on *C. atratus* Chaud., British Museum (Biologia Coll.),

No. 698, Irazu, Costa Rica; on *Gynandropus Mexicanus* Putz., British Museum (Biologia Coll.), No. 682, Cordova, Mexico. Usually on legs.

Rhachomyces Thalpii nov. sp.

Perithecium hyaline or straw colored, becoming faintly tinged with brown, slender, inflated near the base; the distal half or less mostly curved away from the appendages, tapering gradually to the blunt undifferentiated apex. Receptacle normally consisting of eleven cells superposed to form the main axis, hyaline, their septa horizontal or but slightly oblique, the basal cell subtriangular, tinged with reddish brown; the cells of the secondary series hyaline and proportionately rather large. Appendages rather dense, almost opaque except the nearly or quite hyaline tip and inner margin; rather short, about four to six of those about the base of the perithecium much larger, longer, and stouter, reaching somewhat higher than the middle of the perithecium, their tips at first clavate becoming obliquely truncate or fan shaped through the degeneration of the hyaline portion, the curved tips of the antheridia projecting rather conspicuously. Perithecia $115 \times 30 \mu$. Total length of receptacle 140μ . Longer appendages 90μ .

On *Thalpius rufulus* Lec., Amer. Mus. of Nat. History. Texas.

Rhachomyces Zuphii nov. sp.

Perithecium relatively small, straw colored, somewhat inflated at the base, the tip rather abruptly distinguished and slightly inflated. Axis of the receptacle slender, consisting normally of about sixteen cells which are nearly hyaline, or with brown shades below the septa. Appendages nearly opaque, straight stout appressed, not elongate, more or less swollen distally along the inner margin of the subhyaline tip; eight to ten about the base of the perithecium longer and stouter. Perithecia $110-140 \times 25 \mu$. Longer appendages about $110-140 \mu$. Total length to tip of perithecium $350-400 \mu$.

On *Zuphium Mexicanum* Chaud., British Museum (Biologia Coll.), No. 713. Cordova, Mexico.

Rhachomyces Canariensis nov. sp.

Perithecium pale straw colored, nearly straight, a median and subterminal well-defined broadly-rounded ridge marking the transverse septa between the three lower tiers of wall-cells; the tip tapering rather abruptly, hyaline, the apex rounded. Receptacle rather slender, the

basal and subbasal cells relatively large, hyaline, the rest pale straw colored, the main axis consisting of fifteen or sixteen cells, the upper five or six forming a free erect termination. The appendages not numerous, appressed, brown; those about the base of the perithecium larger, distally blunt and hyaline, about two thirds as long as the perithecium. Perithecia $90-130 \times 27-30 \mu$. Receptacle $175-225 \mu$. Appendages, longest, about 100μ . Total length to tip of perithecium $250-325 \mu$.

On *Trechus flavomarginatus* Woll., British Museum., No. 419. Teneriffe. On elytra.

Rhachomyces tenuis nov. sp.

Perithecium relatively small, the lower half or more hidden by the appendages, hardly inflated, faintly tinged with brown, tapering very slightly to the tip, which is suffused with dark brown, broad, hardly differentiated and slightly asymmetrical. Receptacle very long and slender, the cells of the main axis thirty to forty in number, dark reddish brown or nearly opaque, subhyaline below the somewhat oblique septa, except the lower members of the series, which are as a rule wholly opaque; the cells increasing slightly in size from the base upward. Appendages straight, narrower distally, rather short and appressed, not very numerous; those about the base of the perithecium, about twelve in number, somewhat larger and longer than the rest, surrounding and concealing it more or less completely; some of the lower appendages also longer and curved conspicuously outward, as are the antheridia. Perithecia about $110 \times 30 \mu$. Longer appendages about $140-160 \mu$. Greatest width of receptacle about 20μ . Total length to tip of perithecium $800-1000 \mu$.

On the legs of a small carabid beetle, Paris Museum, No. 113. Java.

Rhachomyces Cryptobianus nov. sp.

Perithecium hyaline or pale straw colored, very long and slender, nearly isodiametric throughout, almost straight, the tip apparently blunt and not well differentiated. The main axis of the receptacle consists of about sixteen cells; the basal cell and those immediately above it slender black and opaque; the rest becoming larger upward, hyaline suffused or mottled with reddish brown. Appendages numerous slightly divergent, becoming longer from the base upward, nearly opaque except along the inner margin and at the tip which is generally bent abruptly

outward, a group of about six below the base of the perithecium much longer than the rest and curved outward in a tuft, those arising about the base of the perithecium very elongate, erect, with straight blunt tips, reaching nearly to the apex of the perithecium.

Perithecia $490-450 \times$ (about) 35μ . Receptacle $275-430 \mu$. Total length to tip of perithecium $650-800 \mu$. Longest appendages $300-430 \mu$.

On *Cryptobium capitatum*, Paris Museum, No. 172. Brazil.

Rhachomyces Cayennensis nov. sp.

Perithecium rather small, yellowish, the anterior margin nearly straight, the posterior convex; the tip clearly and abruptly differentiated, concolorous, asymmetrical, somewhat bent. Main axis of the receptacle rather strongly curved, consisting of about twelve cells; the basal ones slender, deeply suffused, those immediately above opaque slender, the rest rather large with central brown suffusions; the distal cells paler. Appendages rather coarse, crowded, black brown, opaque or nearly so, the tips mostly bent outward, appressed below, somewhat divergent distally; six or more about the base of the perithecium slightly longer than the rest, nearly equalling, sometimes slightly exceeding the perithecium in length. Perithecium $120-140 \times 25-30 \mu$. Total length to tip of perithecium about 350μ (average). Longest appendages 140μ .

On *Cryptobium* sp. indet., British Museum No. 387. Cayenne. On the inferior surface of abdomen.

Rhachomyces stipitatus nov. sp.

Perithecium pale straw colored becoming tinged with brownish, much darker toward the tip; broadly subfusiform, usually symmetrical, tapering from about the middle to the small blunt usually symmetrical, hardly differentiated, often hyaline tip; borne free on a stalk-cell which is concolorous, sometimes as long as the receptacle, in other cases but slightly developed. Receptacle straw colored, or faintly brownish; the main axis consisting of about fifteen to seventeen cells, the septa rather oblique, its distal portion, consisting of about two to four cells, erect and free: the cells of the secondary axis relatively large, concolorous, that opposite the subbasal cell of the main axis bearing a long opaque blackish brown appendage curved toward the receptacle and often equalling it in length, other similar appendages arising at intervals above it but not from all the lower cells, becoming more numerous throughout the distal half and in some instances extending to or beyond the tip of the perithecium even

in the long stalked forms, associated throughout with shorter appendages and antheridia. Some of the individuals on *A. Lespezi* small, the main axis of the receptacle consisting of only seven cells, the perithecia nearly sessile and small in proportion. Spores $50-60 \times 4 \mu$. Perithecia $140-150 \times 45-69 \mu$ ($100 \times 30 \mu$ in small specimens), the stalk including basal cells longest $220 \times 47 \mu$. Total length to tip of perithecium about 550μ ($200-680 \mu$). Receptacle 325μ ($110-350 \mu$). Appendages longest 400μ .

On *Anophthalmus Rhadamanthus* Lind., Hope Coll. No. 306, Greece; on *A. Lespezi* Fair., Paris Museum; No. 185, Grotte des Capucini, Seine et Garonne, France.

Compsomyces Lestevi nov. sp.

Receptacle consisting of a small basal and subbasal cell, the latter giving rise to rarely more than two branches; one of which consists of a basal cell, from the upper side of which the stalk-cell of the perithecium arises; while externally it gives rise to a characteristic sterile branch, simple, usually slightly upcurved, rather closely and somewhat obliquely septate, commonly consisting of about nine superposed cells tapering rather abruptly at the tip. Perithecium borne on a well developed erect stalk-cell, nearly symmetrical, tapering from about the middle to the broad truncate undifferentiated tip; the basal cells small, but slightly distinguished from the inflated base of the ascigerous portion, the spores few and relatively large. The other branch arising from the subbasal cell of the receptacle, an antheridial branch, divergent, consisting typically of four superposed cells above which it becomes furcate, dividing into two branches which are large stout tapering, distally curved; the third cell of the appendage producing a single short flask-shaped antheridium distally on its inner side and sometimes giving rise to a branch similar to those above. Spores $42 \times 4 \mu$. Perithecia $75-85 \times 30-35 \mu$, the stalk $75 \times 22 \mu$. Antheridial appendage including branches 275μ , the basal part about $60 \times 20 \mu$.

On *Lesteva sicula* Erich, British Museum, Nos. 452 and 453, Paisley and Red Hill, England. On abdomen and elytra.

CLEMATOMYCES nov. genus.

Receptacle consisting of a basal and a subbasal cell from which arises distally a main axis bearing a terminal perithecium and formed by a double row of cells; the cells of the external row producing sterile appendages,

those of the inner producing either secondary axes similar in structure to the primary one, or antheridial branches; the secondary axes producing antheridial or sterile branches on both sides, and like the primary ones bearing a single terminal perithecium. The antheridia simple, borne as in *Compsomyces*, usually several from the distal ends of successive cells.

***Clematomyces Pinophili* nov. sp.**

Nearly hyaline or yellowish, the basal and subbasal cells small, the cells of the main axis in six to twelve pairs more or less alternate on either side, each cell of the outer series giving rise to a three or four celled usually simple generally appressed sterile appendage, the terminal cell of which is often smoky brown, its basal cell almost wholly united to the cell of the axis next above; the secondary axes one to three in number, usually with a single basal cell, the external branches more often simple and sterile, the inner fertile; the antheridial appendages of both primary and secondary axes more often simple, sometimes sparingly branched, those near the perithecia bearing the greatest number of antheridia which may arise singly or opposite in pairs, or in whorls of three or four from the distal (one to four) cells of the appendage. Perithecium solitary, sessile at the tips of the primary and secondary axes, often straight and symmetrical tapering to the truncate unmodified apex, pale becoming amber brown. Spores about $38 \times 3 \mu$. Perithecia $100-150 \times 25-40 \mu$. Sterile appendages, longer, $100 \times 7 \mu$. Greatest length to tip of perithecium (main axis) $300-400 \times 35 \mu$.

On *Pinophilus* sp. indet., British Museum, No. 390, Burmah, India. On inferior surface.

***Sphaleromyces obtusus* nov. sp.**

Perithecia relatively large, clear dark brown becoming almost opaque; the inner margin nearly straight, the outer strongly convex; tapering very slightly basally and distally; the tip paler brown, abruptly distinguished, and when viewed sidewise flaring, with straight divergent lateral margins, the distal margin as broad as the portion of the perithecium below the tip and slightly concave, the outer lips more prominent and much broader than the inner: when viewed at right angles to this position the tip appears in general bluntly rounded not expanded, the more or less papillate tips of the lip-cells situated in asymmetrical pairs, which are visible above and below a broad bluntly rounded median portion between them: the basal cells colored like the perithecium, distinct,

hardly broader than the stalk-cell which is hyaline contrasting thick-walled and about twice as long as broad. Receptacle small, suffused with brown, two celled; the septa somewhat oblique, the upper cell contrasting abruptly with the colorless stalk-cell, and giving rise laterally to the slightly divergent appendage, which consists of from five to six nearly opaque brown cells, separated by oblique septa; each producing distally on the inner side a short hyaline branch, sometimes once branched. Spores about $40 \times 3.5 \mu$. Perithecia $140-150 \times 40-45 \mu$, the stalk-cell $35 \times 20 \mu$. Receptacle not including foot $27-35 \times 10 \mu$. Appendage, mostly broken $70-100 \mu$. Total length to tip of perithecium $230-245 \mu$.

On *Lathrobium Illyricum* Dej., British Museum, No. 384. Algeria(?). On superior surface of abdomen.

Sphaleromyces propinquus nov. sp.

Like *S. obtusus* in size, form, and color, except that the tip of the perithecium is symmetrical or nearly so, the lips forming a broadly rounded blunt terminal prominence with sometimes a slight median elevation, while at the base the tip is characteristically broadened through the presence of distinct lateral elevations on either side: the stalk-cell rather abruptly swollen below the basal cells of the perithecium.

On *Lathrobium*, sp. indet., British Museum, No. 383. Europe. On superior surface of abdomen.

This species is doubtfully separated from *S. obtusus* on account of the very different conformation of the tip of the perithecium, which, as the material in either case occurred in the same position on the host, can hardly be due to position of growth.

Sphaleromyces atropurpureus nov. sp.

Perithecium large, purplish, more or less distinctly curved away from the appendages, tapering below, often broader distally above the middle, tapering thence slightly to the tip, which is usually not distinctly differentiated; the apex small truncate or slightly papillate; the basal cells large, as long as or longer than the stalk-cell, dull amber brown. Basal cell of receptacle large, not greatly elongated, tapering below, the nearly hyaline distal portion obliquely distinguished from the deeply suffused, partly opaque portion of the cell below; the subbasal cell subtriangular. Appendage consisting of about five cells decreasing in size from below upward, the septa nearly horizontal; those above the basal cell giving

rise to a branch on the inner side, which in the subbasal cell and the cell above it consist of a very large broad basal cell, from which arise from two to four subhyaline branches which may be once branched, the branches crossing the stalk and basal cells of the perithecium obliquely, usually on the left side, so that when the perithecium lies at the left, the appendages lie above them. Spores $35 \times 3.5 \mu$. Perithecia $175-200 \times 30-35 \mu$, the stalk and basal cells together $50-70 \times 17-20 \mu$. Receptacle $85-100 \times 40 \mu$. Total length to tip of perithecium $270-350 \mu$. Appendage without branches $50-75 \mu$.

On *Quedius graciliventris* Sharp, British Museum, No. 740 (Biologia Coll.), Volcan de Chiriqui, Panama; on *Q. basiventris* Sharp, No. 741, from same locality. On abdomen.

Sphaleromyces Brachyderi nov. sp.

Perithecium evenly suffused with brown, paler distally, somewhat inflated at the base, tapering slightly toward the tip; an external deep brown almost opaque appendage projects subterminally, exceeding the tip of the perithecium, broad with a nearly median indentation of the inner side, the outer margin slightly, the upper strongly curved outward, terminating in a short blunt point or slightly inflated portion rather abruptly distinguished on its inner side; the tip asymmetrical, one of the outer lip-cells extending above and free from the others, forming a hyaline bluntly pointed termination at the base of which the tips of the other lip-cells form irregular prominences; basal cells concolorous, stalk-cell short and similar to the basal cells. Basal cell of the receptacle very large, long, attenuated below and deeply blackened, as in *Camptomyces*, the distal cell subtriangular concolorous with the stalk-cell. Appendage consisting of four or five rather flattish brown cells, decreasing in size from below upward, their septa directed obliquely outward and downward, each producing a branch from its upper inner angle, which is simple or one or more times branched, the branchlets subhyaline. Spores about $30 \times 3 \mu$. Perithecia $120-140 \times 28-35 \mu$, its appendage $35 \times 12 \mu$. Receptacle $85-100 \times 30-35 \mu$. Primary appendage about 35μ , with branchlets about 120μ . Total length to tip of perithecium $225-260 \mu$.

On *Brachyderus antennatus* Sharp, in Dr. Sharp's Coll. Peru.

MISGOMYCES nov. genus.

Receptacle consisting of numerous cells superposed singly or in tiers of two to three cells each, terminating in a more or less irregularly cellular base bearing appendages singly or in groups. The solitary perithecium arising beside the appendages, the two situated in relation to one another as in *Laboulbenia*.

The antheridia could not be recognized in the material examined, the appendages being more or less broken in all cases, but are doubtless simple, the genus being probably related to *Laboulbenia*, while at the same time it suggests some forms of *Ceratomyces*.

Misgomyces Dyschirii nov. sp.

Rather rich amber brown, the receptacle consisting of from eight to twenty-three superposed cells, the upper ones rarely divided longitudinally, the distal cell lying between several, usually three, smaller cells which become separated from it on either side, and which, together with its base, are united to the base of the perithecium; while above it, and separated from it by a thin dark insertion, a cellular base gives rise to the group of appendages, the irregular basal cells of which alone remain in the material examined. Perithecium nearly oval or very slightly pointed, the tip and lips undifferentiated. Spores, seen only in perithecium, with base apparently abruptly recurved or bent, about $60 \times 3.8 \mu$. Perithecia $70-85 \times 35-40 \mu$. Receptacle $135-400 \mu$. Total length to tip of perithecium $200-435 \mu$.

On *Dyschirius globosus* Herbst., Hope Coll., No. 349, England; on *D. salinus* Schaum., British Museum, No. 582, Europe.

Misgomyces Stomonaxi nov. sp.

Hyaline or pale straw colored. Receptacle consisting of a basal and one or two more single superposed cells, the cells above these becoming rather irregularly divided longitudinally to form a double row of variable length, above which a second longitudinal division appears, the receptacle in this region being made up of three-celled tiers as far as the base of the perithecium, above which its distal part consists of several superposed pairs of cells, or of two rows of cells more irregularly distributed, the insertion of the appendages rather indefinite, the cells composing it producing irregular hyaline or brownish branches distally. Perithecium externally nearly straight, the inner margin convex, the tip rather abruptly

differentiated, straight or curved outward. Perithecia $90-100 \times 25-30 \mu$. Receptacle $300-335 \mu$. Total length to tip of perithecium $365-400 \times 40-45 \mu$.

On *Stomonax striaticollis* Dej., British Museum No. 593, China. On elytra.

Ceratomyces Floridanus nov. sp.

Purplish brown. Perithecium much as in *C. confusus*, the outer margin nearly straight, the inner somewhat convex, the two inner rows of wall cells, about twenty-four in number, rich red brown with a blackish tinge distally; the outer wall cells, about nineteen in number below the perithecial appendage abruptly and evenly paler, yellowish straw color or faintly brownish; the twentieth cell (about) forming the base of the perithecial appendage which is black, quite opaque, curved outward and upward and geniculate near its base the inner margin of which is abruptly distinguished (not continuous with the adjacent margin of the tip as in *C. confusus*); the tip distally hyaline, the apex forming a prominent symmetrical well defined rounded hyaline papilla. Receptacle consisting of three superposed cells almost wholly black and opaque except along their anterior margins and the distal margin of the upper cell, which are pale straw yellow or amber colored, the series surmounted by two small flattened cells from which arise the perithecium and appendage respectively. Appendage long tapering, consisting of seven or eight superposed cells, clear reddish brown with a blackish tinge, the inner margin as well as the distal portion yellowish or amber colored. Perithecia $300-325 \times 60 \mu$. The appendage 150μ . Receptacle $150-160 \times 75 \mu$. Appendage about $175-200 \mu$.

On *Tropisternus glaber* Hb. Eustis, Florida, October. On margin of left elytron.

Ceratomyces cladophorus nov. sp.

Perithecium very large with a slightly sigmoid curvature, the lower half conspicuously inflated above the rather narrow base, the outer margin of the inflated portion strongly convex, the inner slightly concave; the distal half or third more nearly isodiametric, bulging subterminally on the inner side, the margin curving thence abruptly outward to the short broad beak-like tip; the apex sometimes apiculate; about the fortieth cell of the outer row of wall-cells forming the base of a subterminal appendage which is curved upward, geniculate at its base, rather long slender and tapering, amber brown becoming blackish below; the peri-

thecium at first pale yellowish, the inflated portion becoming rich amber brown, the distal portion much paler except in the region of the more deeply suffused subterminal elevation on the inner side. The narrowed base nearly hyaline, not differentiated from the receptacle. Receptacle consisting of three superposed cells, short, narrow below, abruptly very broad above; the foot relatively small, the basal cell small, at first hyaline, later becoming tinged with smoky brown; the two distal cells relatively very small and broadly blackened except along the nearly hyaline anterior margin, the opaque area extending obliquely so as to involve the geniculate base of the appendage. Appendage relatively very large and stout, tapering in very young individuals to a slender apex and consisting of from fifteen to twenty superposed cells, many of which may be once longitudinally divided, a subtriangular appendiculate cell being separated from the inner side, or also from the outer distally; the branches numerous with very long and slender branchlets which may be several times branched. Spores $95 \times 4 \mu$. Perithecia $475-550 \times 90-110$ (inflated portion) $\times 70 \mu$ (distal portion). Receptacle including foot 85μ . Total length to tip of perithecium (longest) 635μ . Appendage $275-475 \times 45 \mu$, its longest branches $550 \times 3 \mu$.

On *Tropisternus nimbatus* Say. Eustis, Florida. On the inferior surface of the thorax on the left side.

Ceratomyces denticulatus nov. sp.

Similar to *C. rostratus*. Amber brown, the ascigerous portion of the perithecium slightly inflated and rather abruptly distinguished from the elongate neck, which at maturity is straight or slightly sinuous; the cell rows containing about fifty-five cells, the neck more slender toward the base, distally somewhat broader; successive cells in two adjacent rows in this broader portion projecting to form well marked rather slender tooth-like blunt outgrowths, directed obliquely upward and separated by a basal septum, one series usually consisting of five cells, sometimes six, the cells immediately below often bulging prominently or forming shorter tooth-like outgrowths; the second series consisting of usually not more than three well defined similar tooth-like outgrowths: above these two series the upper fifth (about) of the neck is bent abruptly backward, lying nearly parallel to the portion below it; the tip broad snout-like, the lip-cells forming a small papillate prominence above and external to a broad rather distinctly differentiated cell, which terminates one of the inner rows, and is almost as large as the lip-cells taken together. Re-

ceptacle rather slender, tapering to the base, consisting of (invariably?) ten superposed cells, exclusive of the foot-cell, which is not always wholly blackened. Appendage as in *C. rostratus*, the numerous branches and branchlets rather slender, not very long, forming a rather compact tuft more or less appressed around the base of the perithecium. Perithecium, ascigerous portion about $85 \times 35\text{--}40\ \mu$, neck to recurved portion $475\text{--}500 \times 20\text{--}25\ \mu$, recurved portion about $125\ \mu$, tooth-like projections $15\text{--}35 \times 6\text{--}7\ \mu$. Receptacle (ten superposed cells) $130\text{--}150\ \mu$. Appendages (longest branches) $175 \times 3\ \mu$.

On a small hydrophilid beetle, Paris, Mus., No. 11, Îles Mariannes, on under surface, and legs.

Ceratomyces elephantinus nov. sp.

Closely resembling *C. denticulatus*, rather faintly tinged with pale amber brown, the neck proportionately somewhat broader; the upper three sevenths to four ninths abruptly recurved, certain adjacent cells of two opposite rows just below this curvature producing broad rather short blunt tooth-like outgrowths, one to two and three to four in each respectively; the tip broad slightly and irregularly sulcate. Receptacle consisting of from seventeen to twenty-two squarish or flattened cells, sometimes hardly broader distally. Appendage producing numerous long slender flexuous branches repeatedly branched. Perithecia, ascigerous part about $140 \times 65\ \mu$, neck to recurved part $475\text{--}525\ \mu$, recurved part $390\text{--}400\ \mu$. Spores $70 \times 3.5\ \mu$. Receptacle $375\text{--}550\ \mu$. Longest branches of appendage $600\ \mu$.

On *Hydrobius* sp.?. Eustis, Florida, October. On legs.

Ceratomyces rhynchophorus nov. sp.

Hyaline. Receptacle long slender, but slightly narrower below, consisting of about forty (thirty-five to fifty) superposed cells, wider than long; those in the lower half more flattened, the foot small. Perithecium lateral, nearly erect, slightly divergent; a short but definite stalk-cell; the cells at the base greatly elongated, extending some distance up around the ascus mass and forming together with the large elongated supporting cell a broad sterile base to the perithecium which is not differentiated from its main body; the cell rows consisting of but five cells, including the very small lip-cells, and the cells of the sterile base; the three upper tiers of cells forming an abruptly differentiated, thick walled, long, tapering beak-like termination, curved outward or inward, often

at right angles; below which the distal end of the outer wall-cell forms a slight rounded prominence, the very small lip-cells forming a slight enlargement. Appendage similar to and continuing the axis of the receptacle directly, or diverging very slightly; the cells giving rise to branches on opposite sides which are subtended by small cells obliquely separated at the distal angles, those from the lower cells short (antheridial?), those from the upper long and several times branched; the main appendage usually broken, but in young individuals consisting of from twenty to twenty-five superposed cells. Spores $48 \times 3 \mu$. Perithecia, ascigerous portion $175 \times 45\text{--}50 \mu$, beak-like termination $140\text{--}160 \mu$, sterile basal portion about 100μ . Receptacle $270\text{--}430 \times 30\text{--}35 \mu$. Appendage (young individuals) 350μ , the branchlets $200 \times 6 \mu$.

On *Phænonotum estriatum* Say. Eustis, Florida, October. On legs and inferior surface. A form growing on the lower surface of the apex of the elytron has enormously developed perithecia with a maximum length of one millimetre.

Ceratomyces reflexus nov. sp.

Closely allied to *C. rhynchophorus*. Hyaline with a few purplish or reddish suffusions on the receptacle, which is composed of from about twenty-five to fifty superposed cells; the foot hyaline, or slightly yellowish, much enlarged, bladder-like or spherical; the distal portion distinctly broader, its axis coincident with that of the erect appendage which forms a direct continuation of it. Perithecium small with few asci, abruptly recurved at the base, its apex thus sometimes touching the inflated foot; nearly straight, tapering almost symmetrically to the blunt slender tip; the ascigerous cells situated at the base just above the small angular stalk-cell. Appendage usually flat and broader than the receptacle towards its base, the superposed flat cells of which it is composed producing appendages on either side much as in *C. rhynchophorus*. Spores $70 \times 4 \mu$. Perithecia $140 \times 20 \mu$. Receptacle $140\text{--}280 \mu$. Appendage $200\text{--}400 \mu$. Foot about $30 \times 30\text{--}38 \mu$.

On *Phænonotum estriatum* Say. Eustis, Florida, October. With *C. rhynchophorus*.

Ceratomyces acuminatus nov. sp.

Hyaline. Receptacle consisting of three superposed cells, the basal cell partly suffused and continuous with the blackened foot. Perithecium rather stout, the outer margin nearly straight, the inner strongly convex; the seventh wall-cell of the inner row greatly enlarged, its outer wall

very thick, forming an erect tapering bluntly pointed terminal appendage, at the base of which the papillate apex of the lip-cells projects on the right side; the fifth cell of the external row of wall-cells growing out to form a subterminal slender appendage, eight-celled in the type, distally attenuated, its terminal cell bearing one or two slender branches. Appendages consisting of from four to five superposed cells, the distal ones appendiculate (the branches mostly broken). Perithecium $185 \times 40 \mu$. The appendage without branches 82μ , the branches 150μ ; the rostrate terminal cell $50 \times 17 \mu$ (at base). Receptacle $85 \times 48 \mu$. Spores about $70 \times 3.5 \mu$. Appendage, broken, without branches 70μ .

On *Berosus* sp. indet. Eustis, Florida, October. On the inferior surface of abdomen and thorax.

Ceratomyces Californicus nov. sp.

Allied to *C. camptosporus*. Amber brown. Receptacle relatively slender, consisting of three small superposed cells surmounted by two similar cells which form the base of the appendage and perithecium; the foot small, normal. Perithecium short and stout, from two to three times as broad distally as at the base; about twenty cells in each of the inner rows of wall cells, the inner margin convex, distally abruptly bent inward to the short beak-like apex; the conformation of the tip, the inner margin of which is thus horizontal or even oblique, resembling that of *C. ornithocephalus*; about the eighteenth cell of one of the outer rows forming the base of the usually straight rather remotely septate perithecial appendage which commonly diverges at an angle of forty-five degrees or even at right angles. Appendage small and slender (the extremities broken in the types) becoming lateral in position. Perithecia $185-200 \times$ (base) $30-40$ (distal portion) $70-85 \mu$. Receptacle $50-70 \times 25 \mu$. Total length to tip of perithecium $250-300 \mu$.

On *Tropisternus dorsalis* Brullé. California. On the left anterior inferior angle of the prothorax.

Ceratomyces ornithocephalus nov. sp.

Allied to *C. furcatus*. Hyaline or becoming more or less suffused with amber brownish. Perithecium relatively rather small, the external margin somewhat concave, the inner convex, the four distal cells of the eight external wall-cells rather abruptly enlarged, their external walls much thickened and forming an irregularly rounded crest-like prominence, the distal half of the margin of which becomes abruptly

almost horizontal, terminating near the base of the beak-like pointed apex, which projects somewhat obliquely from the right side: the external row of wall cells producing above the fourth cell a large appendage, geniculate at its base, tapering distally where it curves outward, consisting of from ten to twenty cells, the terminal cell rarely bearing one or more slender branches. Receptacle consisting of three superposed cells, the basal one usually opaque, except distally, and continuous with the foot, surmounted by two cells from which arise the perithecium and the appendage. The appendage (usually broken) curved outward and upward, consisting of about ten superposed cells, the upper ones giving rise to a few branches on the inner side, which may be several times branched, the branchlets slender, mostly erect and rather rigid. Spores about $70 \times 30 \mu$. Perithecia $120-160 \times 35-45 \mu$, the crest-like tip $38-45 \mu$ broad, the appendage $120-325 \mu$. Receptacle $85-120 \mu$. Appendage, exclusive of branches $140-150 \mu$. Total length to tip of perithecium $210-290 \mu$.

On *Berosus striatus* Say. Kittery Point, Maine. On margin of right elytron towards the apex (invariably).

EUZODIOMYCES nov. genus.

Receptacle elongate, multicellular; consisting of a large and indefinite number of cells superposed above the single basal cell and distally becoming divided by few or many longitudinal septa; the distal portion bearing a unilateral series of perithecia and appendages. Perithecia with from nine to ten wall cells in each row, borne on a three-celled stalk.

Closely allied to *Zodiomyces*. Antheridia were not distinguished, the material being scanty and in bad condition.

Euzodiomyces Lathrobii nov. sp.

Hyaline or faintly yellowish. Receptacle long and slender, or shorter and stouter as in *Zodiomyces*, according as the longitudinal septa are few or abundant; the superposed cells and tiers of cells sometimes nearly a hundred in number, the upper half or more producing a unilateral series of perithecia and appendages. Perithecia distinctly broader distally, the fourth or the fifth to the seventh wall cells inclusive, of two opposite rows, growing upward and outward to form well developed prominences, giving the margin on either side in this region a bluntly serrate appearance; the lip-cells arched, forming a characteristic broad dome-like apex;

the two lower stalk-cells small, the upper much larger, stout, and as broad as the base of the perithecium. Appendages long slender cylindrical, simple or sparingly branched, flexuous. Perithecia $75 \times 28-30 \mu$ (including projections), stalk about 40μ , the upper cell about $22 \times 14 \mu$. Total length of receptacle $200-475 \times 25-70 \mu$. Appendages $125-230 \times 4 \mu$.

On *Lathrobium punctatum* Zett., British Museum No. 442, Notting Hill, England; on *L. multipunctatum* Grev., British Museum No. 429, Europe; on *L. filiforme* Grav. British Museum No. 443, Notting Hill, England.